

## PATENT SPECIFICATION

DRAWINGS ATTACHED

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## COMPLETE SPECIFICATION

## Improvements in or relating to Packaging Goods in Laminated Material

We, THE METAL BOX COMPANY LIMITED, a Company Incorporated under the laws of Great Britain, of 37, Baker Street, London, W.1., England, do hereby declare the invention for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:

This invention relates to a method of packaging goods, for example biscuits.

According to the invention there is provided a method of packaging goods, for example biscuits, comprising the steps of loosely packaging the goods in a sheet of laminated packaging material consisting of heat-shrinkable thermoplastic polymeric material which has been held under tension while the polymer is cooled and which by a pattern of spot adhesions arranged at spaced intervals has then been adhered to at least one layer of flexible heat-stable material, and subjecting the package to a temperature sufficient to cause shrinkage of the layer of heat-shrinkable material and consequent wrinkling of the heat-stable material.

In one embodiment of the invention the heat-shrinkable material is polyethylene and the heat-stable material is paper, and in another embodiment the heat-shrinkable material is polypropylene and the heat-stable material is cellulose.

In a preferred embodiment of the invention the pattern consists of spot adhesions arranged in horizontal and vertical rows with the spots of one row unaligned with those of the next preceding and next succeeding rows. The spot size may be 0.06 inch diameter.

In order that the invention may be clearly understood one embodiment thereof will now be described, by way of example, with reference to the drawings accompanying the Provisional Specification, in which:—

Fig. 1 is a diagrammatic section illustrating

the lamination of one layer of material to another, the laminate being shown in the condition thereof before heat-shrinking of a heat-shrinkable layer of material.

Fig. 2 is a view similar to that of Fig. 1 but showing the heat shrinkable layer in the shrunk condition thereof.

Fig. 3 illustrates a pattern of spot adhesions by which the layers of material are laminated one to the other, and

Fig. 4 is a perspective view of a package formed with laminated material by the method according to the invention.

Referring to the drawings, the laminated material comprises at least one layer of heat-shrinkable material and one layer of flexible heat-stable material and as shown in Fig. 1 the laminate consists of a layer 1 of heat shrinkable material and a layer 2 of flexible heat-stable material. In one embodiment of the invention the material 1 is polyethylene and layer 2 is paper, and in another embodiment the layer 1 is polypropylene and layer 2 is a cellulose film. The heat-shrinkable material is, however, a thermoplastic polymeric material which while being extruded as a film is held under tension whilst the polymer cools, and the flexible heat-stable material is of a kind which when heated to the temperature required to activate the heat-shrinkable layer of the laminate does not significantly alter its dimensions.

The layers 1, 2 are adhered one to the other at spaced intervals over the area of the materials by adhesive spots 3, Figs. 2 and 3, and when so adhered the laminate can be subjected to a temperature such as to activate the heat-shrinkable layer 1 so that it shrinks and by so doing causes the heat-stable material to wrinkle as indicated at 4 in Fig. 4.

Any desired pattern of adhesive spots 3 may be chosen according to the general arrange-

ment of wrinkles 4 it is desired to produce. As shown in Fig. 3, the pattern of spots 3 consists of horizontal rows 5 and vertical rows 6 the spacing 7 between which is 0.25 inch, and the spots 3 are so arranged that those in one row 5 or 6 are unaligned with those in the next preceding and next succeeding rows. Preferably the spot size is 0.06 inch diameter.

The adhesion by spots 3 may be effected, according to the nature of the materials used for layers 1 and 2, by water-based glues, by solvent-based adhesives, or by spot heat-sealing.

The laminated material is formed as a loose package about the goods, for example biscuits, to be packaged and the loose package is then passed through a shrink tunnel in which the layer 1, which usually will be the outer layer, is shrunk so that the package, if the heat-shrinkable material is transparent, has a wrinkled appearance as illustrated in Fig. 4. The wrinkling of the inner, heat-stable, layer offers a cushioning effect against damage to the contents during handling of the package.

Although in the foregoing description the laminate has been described as formed from two layers 1, 2 of material, it will be understood that more than two layers may be employed, for example a single layer 1 may be laminated between two layers 2, or a single layer 2 may be laminated between two layers 1. The laminate consisting of a single layer 1 between two layers 2 is, however, that which would be preferred because a package made from such a laminate will have the better cushioning properties.

#### WHAT WE CLAIM IS:—

1. A method of packaging goods, for exam-

ple biscuits, comprising the steps of loosely packaging the goods in a sheet of laminated packing material consisting of heat-shrinkable thermoplastic polymeric material which has been held under tension while the polymer is cooled and which by a pattern of spot adhesions arranged at spaced intervals has then been adhered to at least one layer of flexible heat-stable material, and subjecting the package to a temperature sufficient to cause shrinkage of the layer of heat-shrinkable material and consequent wrinkling of the heat-stable material.

2. The method according to Claim 1, wherein the heat-shrinkable material is polyethylene and the heat-stable material is paper.

3. The method according to Claim 1, wherein the heat-shrinkable material is polypropylene and the heat-stable material is cellulose.

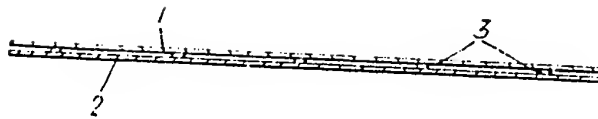
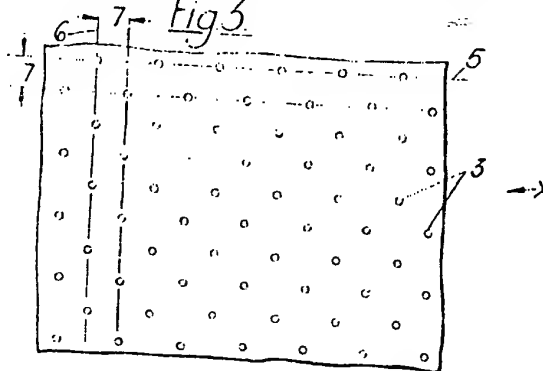
4. The method according to any one of Claims 1 to 3, wherein the pattern consists of spot adhesions arranged in horizontal and vertical rows with the spots of one row unaligned with those of the next preceding and next succeeding rows.

5. The method according to Claim 4, wherein the spot size is 0.06 inch diameter.

6. A package formed by the method according to any one of Claims 1 to 5.

7. A package according to Claim 6 substantially as herein described with reference to Fig. 4 of the drawings accompanying the Provisional Specification.

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*Fig. 1**Fig. 2**Fig. 3**Fig. 4*